



ART. IX. A NEW XIPHOSURAN, *EUPROOPS MORANI*,
FROM THE UPPER DEVONIAN OF PENNSYLVANIA.

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So few Xiphosurian remains have been described that any record of their occurrence is of interest. Mr. William Moran, during the collecting season of 1936, found part of an abdomen of a Limuloid, whose closest relationship is probably to the genus *Euproops*. This specimen was found along the road-cut north of North Warren, Pennsylvania, and is from the Salamanca sandstone, the former second Venango oil sand, of the Upper Devonian, and therefore one of the oldest "Euproops-like limuloids" so far found. Typical Salamancan marine forms were collected in the same stratum.

Three other species have been described from nearby localities in the Upper Devonian of New York and Pennsylvania. *Prestwichia randalli* Beecher, 1902, has been shown by Dunbar, 1923, to be probably a *Paleolimulus*; *Belinurus alleganyensis* Eller, 1938, cannot be compared with the specimen described in this paper; while the third species, *Protolimulus eriensis* Williams, 1885, has a general limuloid shape, but the condition of its preservation makes comparison impossible. The writer hesitates to erect a new genus for the Warren form since only the abdomen is known, even though the specimen is well preserved and differs in some respects from *Euproops* and *Prestwichianella*.

I am indebted to Mr. Sydney Prentice for the drawing which accompanies the description.

***Euproops morani* sp. nov.**

The abdomen is semicircular in outline with probably one or two segments missing. The left side is slightly distorted by being compressed toward the rachis. Six segments of the rachis present are highly convex and taper gradually and become less convex and smaller, posteriorly, except for the last segment which is wider. The individual segments of the rachis have three large nodes, the middle one being the largest, and there is evidence that it is capped by an additional tubercle. The pleural region is highly convex, adjacent to

the rachis, but becomes concave toward the flattened lateral margins. Margins of the pleural regions are serrated, and the serrations probably bore spines. From the lower half of the first three rachial segments, pleural ridges extend to the serratures on the lateral margins. Pleural ridges do not extend from the three posterior rachial segments and the opposite lateral margins are not serrated. The dimensions of the specimen are as follows: width of the abdomen 35.3 mm., length of the abdomen 20.8 mm., width of rachial segment 7.5 mm., length of rachis 14.1 mm., estimated height 8 mm.

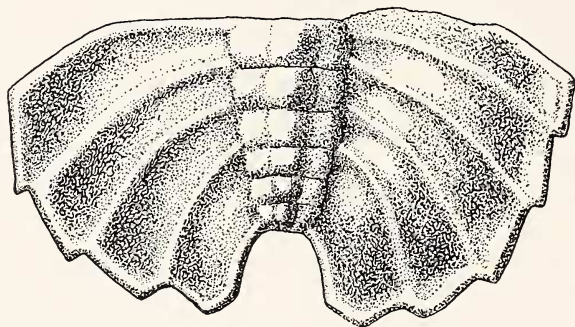


FIG. 1. *Euproops morani* Eller, $\times 2$, from the Upper Devonian of Pennsylvania. The type is in the Carnegie Museum, no. 11574, Section of Invertebrate Paleontology.

Family EUPROOPIDAE fam. nov.

In the course of this study the writer has reviewed the forms belonging to the family *Limulidæ* and has concluded that the genera *Euproops* and *Prestwichianella* (which are closely related) are different from the other genera of the family in so many respects that they should be segregated to constitute a new family, with *Euproops* as the type of this family. In such a way the classification of the group will be as follows:

Order XIPHOSURA Gronovius

Suborder LIMULIDA Rud. and E. Richter

Family Belinuridae Packard

Genus *Belinurus* König

Neobelinuropsis Eller

Picombella Chapman

Family Limulidae Zittel

- ?Genus *Belinuroopsis* Matthews
Prolimulus Fritsch
Protolimulus Packard
Psammolimulus Lange
Paleolimulus Dunbar
Limulus Miller
Kioeria Stormer

Family Euproopidae fam. nov.

- Genus *Euproops* Meek
Prestwichianella Woodward

BIBLIOGRAPHY

- BEECHER, C. E.
 1902. Amer. Geol., vol. 29, no. 3, pp. 143-146.
- DUNBAR, C. O.
 1923. Amer. Jour. Sci. 5th series, vol. 5, no. 30, pp. 443-454.
- ELLER, E. R.
 1938. Ann. Carnegie Museum, vol. XXVII, pp. 129-150.
- WILLIAMS, H. S.
 1885. Amer. Jour. Sci. 3rd series, vol. 30, pp. 45-49.
 1885. Geol. Mag., Decade 3, vol. 2, pp. 427-429.